

REMARKS

In the Office Action mailed October 29, 2008 the Office noted that claims 37-73 were pending and rejected claims 37-73. No claims have been amended; claims 37-73 have been canceled; claims 74-94 are new; and, thus, in view of the foregoing claims 74-94 remain pending for reconsideration which is requested. No new matter has been added. The Office's rejections and objections are traversed below.

DOUBLE PATENTING

Claims 37-73 are provisionally rejected on grounds of nonstatutory obviousness-type double patenting as being unpatentable over claim 1-35 of co-pending Application No. 10/505,852.

The Applicants have cancelled the claims in favor of new claims and thus, believe that the claims no longer read on the claims of the co-pending Application.

Therefore, withdrawal of the provisional rejection is respectfully requested.

OBJECTION TO THE SPECIFICATION

The disclosure stands objected to for informalities. In particular, the Office states that the Specification lacks section headings. The Applicant has amended the Specification in conformity with MPEP § 608.01(a). The Amendment may be found in

marked-up and clean replacement version following the appendix of this document. The Applicants submit that no new matter has been added by the submission of the replacement Specification.

Withdrawal of the objection is respectfully requested.

OBJECTION TO THE DRAWINGS

The drawings stand objected to. In particular the Office asserts that figures 2-3 and 5-6 do not include labels identifying the blocks in the figures.

The undersigned wishes to thank the Examiner for taking his phone call on April 29, 2009. In the phone call the Applicant's attorney explained that the Figures have yet to be returned from the draftsman and that they will be submitted by Supplemental Amendment to which the Examiner agreed.

REJECTIONS under 35 U.S.C. § 112

Claims 38, 39, 43-45, 51, 63, 64, 66, 68 and 71 stand rejected under 35 U.S.C. § 112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention. In particular, the Office asserts the claims recite indefinite language such "all or part, one or other"; "all or some"; and "and/or." The Applicants have cancelled the claims in favor of new claims which do not contain such language.

Withdrawal of the rejections is respectfully requested.

REJECTIONS under 35 U.S.C. § 102

Claims 37-41, 43, 44, 58-60 and 62-69 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Moorer, U.S. Patent No. 6,904,152. The Applicants respectfully disagree and traverse the rejection with an argument and amendment.

The Applicants have cancelled claims 37-73 in favor of claims 74-94. Support for the claims may be found, for example, for claim 74, page 21, line 23; page 8, lines 21 to 23; page 14, lines 14 to 17; page 15, line 30; and page 26, lines 20 to 26; for claim 75, page 9, lines 23 and 24; for claim 76, page 14, lines 28 to 31; for claim 77, page 14, lines 18 and 19, and page 17, lines 3 to 5 and page 18, lines 14 to 17; page 15, line 30; claim 78, and page 16, lines 3 and 4; claim 80, page 17, lines 13 and 14; claim 82, page 23, lines 3 to 25; and page 20, lines 19 to 23; claim 83, page 20, lines 24 to 31; and claim 84, page 19, line 10 to page, line 6 of the Specification as originally filed. Other claims find support in the claims as filed in the preliminary amendment of March 22, 2005 and throughout the Specification.

The present invention as embodied in the claims relates to spatial processing of a sound field representation formed by coefficients in order to obtain a modified sound field representation also formed by coefficients.

For instance, Fourier-Bessel coefficients could be used

to represent a sound field, as they allow the obtaining of an accurate representation of the sound field.

However, a further problem is that a sound field represented by coefficients can not be modified in an intuitive way by a user because it is not possible to visualize a sound field from its coefficients.

Thus, claim 74 comprises a step of "defining the processing operation by a set of at least one directivity function". The directivity function is a function having as arguments the angular variables of spherical coordinates. A user can easily visualize such a directivity function, and thus easily define the processing they want to apply on the sound field.

The use of directivity functions in the method of claim 74 therefore allows a user to easily define a wide variety of processing operations.

In the description, two kinds of processing operations that can make use of a directivity function are described. The claims 77 to 81 relate to the first kind (processing operations that can be achieved by using a mathematical operation having as arguments the directivity function of the sound field and the directivity function of the processing operation, for example multiplication-based processing operations or convolution-based processing operations). Claim 82 is directed to the second kind (distortion operations).

On page 8 of the Office Action, it is asserted that

Moorer, Figs. 1, 3, 9 and 10 and col. 4, line 6 through col. 7, line 63 disclose "a step (6) of determining the filtering combinations on the basis of that decomposition for the implementation of a step (10) of applying the filtering combinations so defined to the coefficients of the initial representation, in order to obtain the modified representation," as in cancelled claim 37.

However, Moorer col. 4, line 6 through col. 7, line 63 discusses how to "mix" a monaural source (i.e. a source represented by a single signal) into a plurality of channels, each associated with a respective angular position, for instance five channels. This is realized by feeding the monaural signal into each of the channels with relative gains (i.e. weights).

The gains are determined by resolving equation (2), which basically states that the monaural signal received at the listener center (left hand of the equation) must be equal to the sum of the weighted monaural signals from each channel.

Thus, Moorer does not describe any filtering combination intended to be applied "to an initial sound field representation ($P_{l,m}^{(l)}$) formed by coefficients representative of the initial sound field in time and in the three spatial dimensions, in order to provide a modified sound field representation," as in claim 74.

Further, Moorer does not disclose "defining (2) the processing operation by a set of at least one directivity

function, establishing (4) spherical harmonic coefficients of each directivity function, determining (6) the filtering combinations from the spherical harmonic coefficients," as in claim 74.

For at least the reasons discussed above, claim 74 and the claims dependent therefrom are not anticipated by Moorer.

Withdrawal of the rejection is respectfully requested.

REJECTIONS under 35 U.S.C. § 103

Claims 42, 45-48, 61 and 70 stand rejected under 35 U.S.C. § 103(a) as being obvious over Moorer in view of Elko, U.S. Patent No. 2003/0147539. The Applicants respectfully disagree and traverse the rejection with an argument.

The claims have been cancelled in favor of new claims.

Elko adds nothing to the deficiencies of Moorer as applied against the independent claim. Therefore, for at least the reasons discussed above, Moorer and Elko, taken separately or in combination, fail to render obvious claims 74-94.

Withdrawal of the rejection is respectfully requested.

SUMMARY

It is submitted that the claims satisfy the requirements of 35 U.S.C. §§ 112, 102 and 103. It is also submitted that claims 74-94 continue to be allowable. It is further submitted that the claims are not taught, disclosed or

suggested by the prior art. The claims are therefore in a condition suitable for allowance. An early Notice of Allowance is requested.

The Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 25-0120 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

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APPENDIX:

- a replacement Specification in both marked-up and clean forms